**Appendix Table 8. Preliminary strip yield response to liquid swine manure application from each demonstration site, 2002.**

**2002 Swine Manure Nutrient Utilization Project - CORN Field Sites**

**Summary of Preliminary "Yield & Related Measures" Data from Replicated Manure Strips**

**Field sites listed alphabetically by county name.**

LSNT values offer a soil sample-based estimate of plant-available soil $NO_3^-$-N in the top foot of soil when corn is 6 to 12 inches tall.

SPAD chlorophyll meter readings measure relative "ear leaf" greenness near R1 corn growth stage. Larger values = greener leaves.

**DAVIS County**

**(Bloomfield, IA) "CORN after SB" field site — FIRST- year manure test — Soil type: Edina**

| Desired Application Rates | Pre-Sample Based Manure Application Rate | Estimated Total Nutrients Applied in Manure | | | Strip Average | | |
|---|---|---|---|---|---|---|---|
| | | N | $P_2O_5$ | $K_2O$ | Corn Yield | LSNT | R1 SPAD |
| | (gallons/acre) | - - - - - (lb/acre) - - - - - | | | (bu/acre) | (ppm) | |
| 0 lb Total N/acre (Check) | No manure | 0 | 0 | 0 | 43 | 5 | 40 |
| 48 lb Total $P_2O_5$/acre (Low) | 1,372 | 70 | 48 | 48 | 76 | 5 | 41 |
| 153 lb Total N/acre (High) | 3,122 | 159 | 109 | 109 | 103 | 13 | 53 |

Nutrient analysis of manure pre-sample (lb/1000 gallons): 49 lb Total N - 35 lb Total $P_2O_5$ - 31 lb Total $K_2O$

Nutrient analysis of field-applied manure sample (lb/1000 gallons): 51 lb Total N - 35 lb Total $P_2O_5$ - 35 lb Total $K_2O$

Manure injected April 5, 2002.

Strip point initial soil test values - Bray-1 P: 8 - 19 ppm; K: 70 - 99 ppm

111-day corn hybrid planted April 16, 2002 (30-inch rows).

**HAMILTON County**

**(Stanhope, IA) "CORN after SB" field site — FIRST- year manure test — Soil types: Brownton & Ottosen**

| Desired Application Rates | Pre-Sample Based Manure Application Rate | Estimated Total Nutrients Applied in Manure | | | Strip Average | | |
|---|---|---|---|---|---|---|---|
| | | N | $P_2O_5$ | $K_2O$ | Corn Yield | LSNT | R1 SPAD |
| | (gallons/acre) | - - - - - (lb/acre) - - - - - | | | (bu/acre) | (ppm) | |
| 0 lb Total N/acre (Check) | No manure | 0 | 0 | 0 | 133 | 9 | 51 |
| 75 lb Total N/acre (Low) | 2,000 | 94 | 38 | 64 | 154 | 16 | 55 |
| 150 lb Total N/acre (High) | 4,000 | 188 | 76 | 128 | 174 | 19 | 56 |

Nutrient analysis of manure pre-sample (lb/1000 gallons): 43 lb Total N - 9 lb Total $P_2O_5$ - 24 lb Total $K_2O$

Nutrient analysis of field-applied manure sample (lb/1000 gallons): 47 lb Total N - 19 lb Total $P_2O_5$ - 32 lb Total $K_2O$

Manure injected November 20, 2001.

Strip point initial soil test values - Bray-1 P: 2 - 62 ppm; K: 154 - 303 ppm

111-day high-oil corn hybrid planted April 26, 2002 (30-inch rows).

**HARDIN County**

**(Iowa Falls, IA) "CONTINUOUS CORN" field site — FIRST- year manure test[a] — Soil types: Webster & Nicollet**

| Desired Application Rates | Pre-Sample Based Manure Application Rate | Estimated Total Nutrients Applied in Manure | | | Strip Average | | |
|---|---|---|---|---|---|---|---|
| | | N | $P_2O_5$ | $K_2O$ | Corn Yield | LSNT | R1 SPAD |
| | (gallons/acre) | - - - - - (lb/acre) - - - - - | | | (bu/acre) | (ppm) | |
| 0 lb Total N/acre (Check) | No manure | 0 | 0 | 0 | 109 | 6 | 41 |
| 60 lb Total $P_2O_5$/acre (Low) | 2,083 | 67 | 35 | 62 | 151 | 10 | 52 |
| 190 lb Total N/acre (High) | 4,935 | 158 | 84 | 148 | 171 | 11 | 56 |

Nutrient analysis of manure pre-sample (lb/1000 gallons): 38.5 lb Total N - 28.8 lb Total $P_2O_5$ - 27 lb Total $K_2O$

Nutrient analysis of field-applied manure sample (lb/1000 gallons): 32 lb Total N - 17 lb Total $P_2O_5$ - 30 lb Total $K_2O$

Manure injected November 6, 2001 (similar manure treatments applied to this site for 2001 corn crop on April 26, 2001)

Strip point initial soil test values - Bray-1 P: 1 - 57 ppm; K: 77 - 194 ppm (sampled Spring 2001)

110-day corn hybrid planted May 5, 2002 (30-inch rows).

[a] Manure strip treatments were re-applied on top of 2001 manure strip treatments (ie: same check, low, and high rate strips both years).

**Appendix Table 8 continued. Preliminary strip yield response to liquid swine manure application from each demonstration site, 2002.**

**2002 Swine Manure Nutrient Utilization Project - CORN Field Sites**

**Summary of Preliminary "Yield & Related Measures" Data from Replicated Manure Strips**

**Field sites listed alphabetically by county name.**

**LSNT values offer a soil sample-based estimate of plant-available soil $NO_3^-$-N in the top foot of soil when corn is 6 to 12 inches tall.**

**SPAD chlorophyll meter readings measure relative "ear leaf" greenness near R1 corn growth stage. Larger values = greener leaves.**

**HARDIN County**

**(Iowa Falls, IA) "CORN after SB" field site** | **FIRST- year manure test** | **Soil types: Webster & Nicollet**

| Desired Application Rates | Pre-Sample Based Manure Application Rate | Estimated Total Nutrients Applied in Manure | | | Strip Average | | |
|---|---|---|---|---|---|---|---|
| | | N | $P_2O_5$ | $K_2O$ | Corn Yield | LSNT | R1 SPAD |
| | (gallons/acre) | - - - - - (lb/acre) - - - - - | | | (bu/acre) | (ppm) | |
| 0 lb Total N/acre (Check) | No manure | 0 | 0 | 0 | 170 | - - - | - - - |
| 100 lb Total $P_2O_5$/acre (Low) | 3,469 | 111 | 59 | 104 | 196 | - - - | - - - |
| 193 lb Total N/acre (High) | 5,013 | 160 | 85 | 150 | 207 | - - - | - - - |

**Nutrient analysis of manure pre-sample (lb/1000 gallons):** 38.5 lb Total N - 28.8 lb Total $P_2O_5$ - 27 lb Total $K_2O$

**Nutrient analysis of field-applied manure sample (lb/1000 gallons):** 32 lb Total N - 17 lb Total $P_2O_5$ - 30 lb Total $K_2O$

**Manure injected November 6, 2001.**

**Strip point initial soil test values - Bray-1 P: 13 - 107 ppm; K: 83 - 418 ppm**

**110-day corn hybrid planted May 5, 2002 (30-inch rows).**

**WASHINGTON County**

**(West Chester, IA) "CORN after SB" field site** | **FIRST- year manure test** | **Soil types: Mahaska & Nira**

| Desired Application Rates | Pre-Sample Based Manure Application Rate | Estimated Total Nutrients Applied in Manure | | | Strip Average | | |
|---|---|---|---|---|---|---|---|
| | | N | $P_2O_5$ | $K_2O$ | Corn Yield | LSNT | R1 SPAD |
| | (gallons/acre) | - - - - - (lb/acre) - - - - - | | | (bu/acre) | (ppm) | |
| 0 lb Total N/acre (Check) | No manure | 0 | 0 | 0 | 144 | 4 | 43 |
| 75 lb Total N/acre (Low) | 1,750 | 119 | 82 | 74 | 203 | 6 | 55 |
| 150 lb Total N/acre (High) | 3,500 | 238 | 165 | 147 | 224 | 8 | 58 |

**Nutrient analysis of manure pre-sample (lb/1000 gallons):** 55 lb Total N

**Nutrient analysis of field-applied manure sample (lb/1000 gallons):** 68 lb Total N - 47 lb Total $P_2O_5$ - 42 lb Total $K_2O$

**Manure injected November 12, 2001.**

**Strip point initial soil test values - Bray-1 P: 88 - 143 ppm; K: 173 - 270 ppm**

**113-day corn hybrid planted April 18, 2002 (30-inch rows).**

**Appendix Table 8 continued. Preliminary strip yield response to liquid swine manure application from each demonstration site, 2002.**

**2002 Swine Manure Nutrient Utilization Project - CORN Field Sites**

**Summary of Preliminary "Yield & Related Measures" Data from Replicated Manure Strips**

**Field sites listed alphabetically by county name.**

LSNT values offer a soil sample-based estimate of plant-available soil $NO_3^-$-N in the top foot of soil when corn is 6 to 12 inches tall.

SPAD chlorophyll meter readings measure relative "ear leaf" greenness near R1 corn growth stage. Larger values = greener leaves.

**CLAY County**

**(Rossie, IA) "CORN after SB" field site — RESIDUAL year manure test — Soil type: Marcus**

| Desired Application Rates | Pre-Sample Based Manure Application Rate | Estimated Total Nutrients Applied in Manure | | | Strip Average | | |
|---|---|---|---|---|---|---|---|
| | | N | $P_2O_5$ | $K_2O$ | Corn Yield | LSNT | R1 SPAD |
| | (gallons/acre) | ----- (lb/acre) ----- | | | (bu/acre) | | |
| 0 lb Total N/ac (Check) | No manure | 0 | 0 | 0 | --[b] | -- | -- |
| 100 lb Total N/ac (Low) | 1,700 | 100 | 53 | 54 | -- | -- | -- |
| 200 lb Total N/ac (High) | 3,400 | 201 | 105 | 109 | -- | -- | -- |

Nutrient analysis of manure pre-sample (lb/1000 gallons): 60 lb Total N

Nutrient analysis of field-applied manure sample (lb/1000 gallons): 59 lb Total N - 31 lb Total $P_2O_5$ - 32 lb Total $K_2O$

Manure surface-broadcast and field cultivator-incorporated May 15, 2001.

Strip point initial soil test values - Bray-1 P: 5 - 17 ppm; K: 148 - 213 ppm (sampled Spring 2001)

104-day corn hybrid planted April 24, 2002 (30-inch rows).

[b] This site's 2002 corn yield and related measures data were collected from superimposed small plots only.

**WASHINGTON County**

**(West Chester, IA) "CORN after SB" field site — RESIDUAL year manure test — Soil types: Nira & Mahaska**

| Desired Application Rates | Pre-Sample Based Manure Application Rate | Estimated Total Nutrients Applied in Manure | | | Strip Average | | |
|---|---|---|---|---|---|---|---|
| | | N | $P_2O_5$ | $K_2O$ | Corn Yield | LSNT | R1 SPAD |
| | (gallons/acre) | ----- (lb/acre) ----- | | | (bu/acre) | (ppm) | |
| 0 lb Total N/acre (Check) | No manure | 0 | 0 | 0 | 135 | 4 | 43 |
| 100 lb Total N/acre (Low) | 3,800 (1:1 dil.) | 114 | 68 | 61 | 133 | 5 | 46 |
| 200 lb Total N/acre (High) | 3,800 | 201 | 125 | 114 | 135 | 4 | 44 |

Nutrient analysis of manure pre-sample (lb/1000 gallons): 53 lb Total N

Nutrient analysis of field-applied manure sample (lb/1000 gallons): Diluted liq. manure 1:1 with water for low rate.

Manure injected April 19, 2001 (before 2001 soybean crop). Low (1:1): 30 lb Total N - 18 lb Total $P_2O_5$ - 16 lb Total $K_2O$

High: 53 lb Total N - 33 lb Total $P_2O_5$ - 30 lb Total $K_2O$

Strip point initial soil test values - Bray-1 P: 9 - 28 ppm; K: 156 - 256 ppm (sampled Spring 2001)

113-day corn hybrid planted April 17, 2002 (30-inch rows).

**Appendix Table 8 continued. Preliminary strip yield response to liquid swine manure application from each demonstration site, 2002.**

**2002 Swine Manure Nutrient Utilization Project - SOYBEAN Field Sites**

**Summary of Preliminary Weigh Wagon/Yield Monitor Yield Data and Related Measures from Replicated Manure Strips**

**Field sites listed alphabetically by county name.**

**FLOYD County**

**(Nashua, IA) "SB after CORN" field site — FIRST- year manure test — Soil types: Readlyn & Kenyon**

| Desired Application Rates | Pre-Sample Based Manure Application Rate | Estimated Total Nutrients Applied in Manure N | $P_2O_5$ | $K_2O$ | Strip Average Soybean Yield |
|---|---|---|---|---|---|
| | (gallons/acre) | ----- (lb/acre) ----- | | | (bu/acre) |
| 0 lb Total N/acre (Check) | No manure | 0 | 0 | 0 | 60 |
| 60 lb Total $P_2O_5$/acre (Low) | 2,340 | 147 | 103 | 112 | 60 |
| 120 lb Total $P_2O_5$/acre (High) | 4,305 | 271 | 189 | 207 | 61 |

Nutrient analysis of manure pre-sample (lb/1000 gallons): 26 lb Total $P_2O_5$

Nutrient analysis of field-applied manure sample (lb/1000 gallons): 63 lb Total N - 44 lb Total $P_2O_5$ - 48 lb Total $K_2O$

Manure injected November 9, 2001.

Strip point initial soil test values - Bray-1 P: 14 - 26 ppm; K: 88 - 110 ppm

Mid-Group II RR soybean variety planted May 16, 2002 (30-inch rows).

**HAMIILTON County**

**(Stanhope, IA) "SB after CORN" field site — FIRST- year manure test — Soil types: Clarion & Webster**

| Desired Application Rates | Pre-Sample Based Manure Application Rate | Estimated Total Nutrients Applied in Manure N | $P_2O_5$ | $K_2O$ | Strip Average Soybean Yield |
|---|---|---|---|---|---|
| | (gallons/acre) | ----- (lb/acre) ----- | | | (bu/acre) |
| 0 lb Total N/acre (Check) | No manure | 0 | 0 | 0 | 55 |
| 100 lb Total N/acre (Low) | 2,325 | 107 | 53 | 79 | 56 |
| 200 lb Total N/acre (High) | 4,650 | 214 | 107 | 158 | 55 |

Nutrient analysis of manure pre-sample (lb/1000 gallons): 43 lb Total N - 9 lb Total $P_2O_5$ - 24 lb Total $K_2O$

Nutrient analysis of field-applied manure sample (lb/1000 gallons): 46 lb Total N - 23 lb Total $P_2O_5$ - 34 lb Total $K_2O$

Manure injected November 21, 2001.

Strip point initial soil test values - Bray-1 P: 9 - 38 ppm; K: 72 - 125 ppm

Late-Group II RR soybean variety planted May 10, 2002 (30-inch rows).

**WASHINGTON County**

**(West Chester, IA) "SB after CORN" field site — FIRST- year manure test — Soil types: Kalona & Taintor**

| Desired Application Rates | Pre-Sample Based Manure Application Rate | Estimated Total Nutrients Applied in Manure N | $P_2O_5$ | $K_2O$ | Strip Average Soybean Yield |
|---|---|---|---|---|---|
| | (gallons/acre) | ----- (lb/acre) ----- | | | (bu/acre) |
| 0 lb Total N/acre (Check) | No manure | 0 | 0 | 0 | 58 |
| 100 lb Total N/acre (Low) | 1,750 | 124 | 95 | 68 | 65 |
| 200 lb Total N/acre (High) | 3,500 | 249 | 189 | 137 | 65 |

Nutrient analysis of manure pre-sample (lb/1000 gallons): 55 lb Total N

Nutrient analysis of field-applied manure sample (lb/1000 gallons): 71 lb Total N - 54 lb Total $P_2O_5$ - 39 lb Total $K_2O$

Manure injected November 16, 2001.

Strip point initial soil test values - Bray-1 P: 24 - 63 ppm; K: 190 - 276 ppm

Early-Group III "conventional" soybean variety planted May 8, 2002 (15-inch rows).

**Appendix Table 8 continued. Preliminary strip yield response to liquid swine manure application from each demonstration site, 2002.**

**2002 Swine Manure Nutrient Utilization Project - SOYBEAN Field Sites**

**Summary of Preliminary Weigh Wagon/Yield Monitor Yield Data and Related Measures from Replicated Manure Strips**

**Field sites listed alphabetically by county name.**

**CLAY County**

**(Rossie, IA) "SB after CORN" field site — RESIDUAL year manure test — Soil type: Marcus**

| Desired Application Rates | Pre-Sample Based Manure Application Rate | Estimated Total Nutrients Applied in Manure N | $P_2O_5$ | $K_2O$ | Strip Average Soybean Yield |
|---|---|---|---|---|---|
| | (gallons/acre) | ----- (lb/acre) ----- | | | (bu/acre) |
| 0 lb Total N/acre (Check) | No manure | 0 | 0 | 0 | - - [b] |
| 75 lb Total N/acre (Low) | 1,200 | 71 | 35 | 38 | - - |
| 150 lb Total N/acre (High) | 2,400 | 142 | 70 | 77 | - - |

Nutrient analysis of manure pre-sample (lb/1000 gallons): 60 lb Total N

Nutrient analysis of field-applied manure sample (lb/1000 gallons): 59 lb Total N - 29 lb Total $P_2O_5$ - 32 lb Total $K_2O$

Manure was surface-broadcast and field cultivator-incorporated May 15, 2001 (before 2001 corn crop).

Strip point initial soil test values - Bray-1 P: 3 - 13 ppm; K: 141 - 221 ppm (sampled Spring 2001)

Late-Group I RR soybean variety planted May 6, 2002 (30-inch rows).

[b] Soybean crop was lost to October 1, 2002 hailstorm (no strip treatment or small plot yield data collected).

**FLOYD County (Nashua) field site — RESIDUAL year manure test — Soil type: Readlyn**

| Desired Application Rates | Pre-Sample Based Manure Application Rate | Estimated Total Nutrients Applied in Manure N | $P_2O_5$ | $K_2O$ | Strip Average Soybean Yield |
|---|---|---|---|---|---|
| | (gallons/acre) | ----- (lb/acre) ----- | | | (bu/acre) |
| 0 lb Total N/acre (Check) | No manure | 0 | 0 | 0 | 57 |
| 60 lb Total $P_2O_5$/acre (Low) | 2,200 | 103 | 55 | 81 | 58 |
| 120 lb Total $P_2O_5$/acre (High) | 4,400 | 207 | 110 | 163 | 59 |

Nutrient analysis of manure pre-sample (lb/1000 gallons): 28 lb Total $P_2O_5$

Nutrient analysis of field-applied manure sample (lb/1000 gallons): 47 lb Total N - 25 lb Total $P_2O_5$ - 37 lb Total $K_2O$

Manure injected April 27, 2001 (before 2001 corn crop).

Strip point initial soil test values - Bray-1 P: 9 -35 ppm; K: 74 - 144 ppm (sampled Spring 2001)

Mid-Group II RR soybean variety planted May 16, 2002 (30-inch rows).

**HARDIN County**

**(Iowa Falls, IA) "SB after CORN" field site — RESIDUAL year manure test — Soil types: Webster & Nicollet**

| Desired Application Rates | Pre-Sample Based Manure Application Rate | Estimated Total Nutrients Applied in Manure N | $P_2O_5$ | $K_2O$ | Strip Average Soybean Yield |
|---|---|---|---|---|---|
| | (gallons/acre) | ----- (lb/acre) ----- | | | (bu/acre) |
| 0 lb Total N/acre (Check) | No manure | 0 | 0 | 0 | 56 |
| 100 lb Total $P_2O_5$/acre (Low) | 2,404 | 115 | 91 | 75 | 58 |
| 193 lb Total N/acre (High) | 4,004 | 192 | 152 | 124 | 59 |

Nutrient analysis of manure pre-sample (lb/1000 gallons): 48.2 lb Total N - 41.6 lb Total $P_2O_5$ - 35 lb Total $K_2O$

Nutrient analysis of field-applied manure sample (lb/1000 gallons): 48 lb Total N - 38 lb Total $P_2O_5$ - 31 lb Total $K_2O$

Manure injected April 26, 2001 (before 2001 corn crop).

Strip point initial soil test values - Bray-1 P: 1 - 65 ppm; K: 60 - 288 ppm (sampled Spring 2001)

Mid-Group II RR soybean variety planted May 18, 2002 (30-inch rows).

**Appendix Table 8 continued. Preliminary strip yield response to liquid swine manure application from each demonstration site, 2002.**

**2002 Swine Manure Nutrient Utilization Project - SOYBEAN Field Sites**

**Summary of Preliminary Weigh Wagon/Yield Monitor Yield Data and Related Measures from Replicated Manure Strips**

**Field sites listed alphabetically by county name.**

**WASHINGTON County**

**(West Chester, IA) "SB after CORN" field site — RESIDUAL year manure test — Soil types: Kalona & Taintor**

| Desired Application Rates | Pre-Sample Based Manure Application Rate | Estimated Total Nutrients Applied in Manure N | $P_2O_5$ | $K_2O$ | Strip Average Soybean Yield |
|---|---|---|---|---|---|
| | (gallons/acre) | ----- (lb/acre) ----- | | | (bu/acre) |
| 0 lb Total N/acre (Check) | No manure | 0 | 0 | 0 | 43 |
| 75 lb Total N/acre (Low) | 3,100 (1:1 dil.) | 105 | 74 | 62 | 47 |
| 150 lb Total N/acre (High) | 3,100 | 189 | 140 | 112 | 47 |

Nutrient analysis of manure pre-sample (lb/1000 gallons): 49 lb Total N

Nutrient analysis of field-applied manure sample (lb/1000 gallons): Diluted liq. manure 1:1 with water for low rate.

Low (1:1): 34 lb Total N - 24 lb Total $P_2O_5$ - 20 lb Total $K_2O$

High: 61 lb Total N - 45 lb Total $P_2O_5$ - 36 lb Total $K_2O$

Manure injected November 10, 2000 (before 2001 corn crop).

Strip point initial soil test values - Bray-1 P: 7 - 106 ppm; K: 175 - 273 ppm (sampled Spring 2001)

Late-Group III RR soybean variety planted May 24, 2002 (15-inch rows).

**WRIGHT County**

**(Dows, IA) "SB after CORN" field site — RESIDUAL year manure test — Soil types: Talcot, Wadena, & Cylinder**

| Desired Application Rates | Pre-Sample Based Manure Application Rate | Estimated Total Nutrients Applied in Manure N | $P_2O_5$ | $K_2O$ | Strip Average Soybean Yield |
|---|---|---|---|---|---|
| | (gallons/acre) | ----- (lb/acre) ----- | | | (bu/acre) |
| 0 lb Total N/acre (Check) | No manure | 0 | 0 | 0 | - - [c] |
| 75 lb Total N/acre (Low) | 1,850 | 91 | 65 | 61 | - - |
| 150 lb Total N/acre (High) | 3,700 | 181 | 130 | 122 | - - |

Nutrient analysis of manure pre-sample (lb/1000 gallons): 41 lb Total N - 25 lb Total $P_2O_5$ - 34 lb Total $K_2O$

Nutrient analysis of field-applied manure sample (lb/1000 gallons): 49 lb Total N - 35 lb Total $P_2O_5$ - 33 lb Total $K_2O$

Manure was injected April 29, 2001 (before 2001 corn crop).

Strip point initial soil test values - Bray-1 P: 1 - 73 ppm; K: 114 - 508 ppm (sampled Spring 2001)

Mid-Group II RR/SCN-resistant soybean variety planted May 3, 2002 (15-inch rows).

[c] Yield data not available at time of report preparation.